REMARKS

This *Amendment* is responsive to the *Official Action* of August 16, 2007, as well as the *Advisory Action* mailed November 30, 2007. The previous Amendment proposed under 37 CFR §1.116 filed on November 1, 2007 is hereby withdrawn.

Claims 49-122 were previously withdrawn from further consideration and are hereby cancelled by way of the foregoing amendments. All claim cancellations are without prejudice.

In the *Office Action* of August 16, 2007, Claims 1-48 and 123-165 were rejected under 35 USC §112, first paragraph, because the claims had "open" ranges as to CD stretch, absorbency, MD stretch and velocity. Claims 1-48, 123-142 and 161-165, all of which contain various recitation, including recitation of a velocity delta at the transfer nip of at least 100 feet per minute, were also rejected as obvious over United States Patent No. 4,849,054 to *Klowak*.

Claims 143-160, which recite absorbency and CD stretch values, were indicated as allowable if rewritten or amended to overcome the §112, first paragraph rejections.

As amended, this application is believed in condition for allowance. All of the ranges previously recited in the claims have been provided (either expressly or by implication through dependency) with an upper and lower limit, as suggested by the Examiner. In addition to cancelling Claims 49-122, the following claims have also been cancelled: 5, 6, 32, 38-39, 48, 124-127, 129, 131, 133, 137-138 and 142. No new matter has been added. Claim 1, for example, has been amended to recite that the absorbency has an upper limit, in g/g, of about 0.9 times the specific volume of the web in cc/g. This subject matter is taken from original Claim 35. Likewise, the recitation of a 20% upper limit on CD stretch is taken from original Claim 6. A velocity delta upper limit of about 2000 fpm is found in the application as filed on page 22, penultimate paragraph, lines 18+. Additional range limitations as to MD stretch, fabric crepe, nip length and so forth are all found in the original claims. If necessary, the values recited appear in the application as filed, pages 8-11. Claim 29 has been amended to recite that the creping step is carried out under pressure consistent with the other independent claims. The outstanding §112 rejections are accordingly deemed overcome.

Claims 143-160 are accordingly believed most clearly in condition for allowance.

Independent Claims 1, 25, 29, 123, 132 and 161 have also been amended to recite a minimum pressure of 20 pounds per linear inch in the creping nip. Support for these amendments is found on page 49, lines 20-23 of the application as filed as well as original Claim 18. As to this value, a minimum pressure is believed adequate to define over the art as well as quantify "under pressure" inasmuch as the Examiner requires this parameter to distinguish *Klowak '054*, discussed below. Applicant notes in connection with these amendments, specifying a single value of pressure or temperature in a claim is entirely adequate in connection with process claims of this class. *Note* MPEP §2173.05(c) II as well as *In re Eickmeyer*, 202 USPQ 655 (CCPA 1970) which held that a minimum temperature threshold in process claims is appropriate to distinguish art.

Claims 1-48, 123-142 and 161-165 are accordingly also believed allowable, especially in light of the foregoing amendments to include a minimum pressure. The relevant portion of the *Final Rejection* reads as follows:

> **Response to Arguments**
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> 4. Applicant's arguments filed on June 11, 2007 have been fully considered but they are not persuasive.
>
> All of the above claims, claims 1-48, 123-142 and 161-165 have as a limitation, at least on the alternative, the velocity at the nip. Applicants arguments regarding such limitation are not convincing, because the cited reference, Klowak, explicitly teaches that the difference between the speeds of the belt creping system, could vary from 10 to 40% and since it is well known that the speed of the papermaking machines, nowadays, could be greater than 2000 ft/min, then a 10% slower would mean 1800 ft/min at the nip on the slower device, which reads on the claims, since 1800 covers at least 100.

Applicant submits that *Klowak* in fact teaches away from fabric creping under pressure and does not teach numerous features recited in all of the claims including redistributing the fiber matrix of a previously formed web under pressure and local basis weight variation. Consider paragraphs 4-6 of the April, 2007 §132 *Declaration* filed in this case:

> 4. Regarding *Klowak* '054, the Examiner noted in the November 15, 2006 *Office Action* that the text at Col. 8, lines 8-25 and **Figures 3** and **4** *Klowak* appeared to describe high and low local basis weight regions:
>
> > An increase in speed differential only from the base line conditions makes it easier for the vacuum to pull the web deeper into the fabric voids such that increases in bulk are attained at the existing relatively low level of vacuum. The limiting factor regarding stretch is alleviated. Upon further increases in speed differential, the web is forced into being shortened or contracted by ramming it into the cross machine filaments of the fabric, in particular, by virtue of the web's higher velocity relative to the velocity of the fabric. The extra lengths of the web in the case of contraction are visualized as being "stuffed"into the voids of the fabric to some extent. The limitation in this case lies in the amount of extra web length that the fabric can accommodate in such a manner under the existing level of vacuum. At still a higher speed differentials, the web has been observed to partially fold over on itself when apparently the capacity for such accommodation was exceeded.
>
> I believe that text and the photographs of *Klowak* '054 is consistent with conventional creping where the web is not re-distributed on the creping belt, but where the web is shortened, folded and the bulk increased.
>
> 5. In my opinion *Klowak* '054 does not disclose, teach or suggest products with local basis weight variation; the text states that the web is transferred to the fabric via suction and the **Figures** are consistent with conventional crepe-bar and embossed geometry of webs which do not have local variation in basis weight. Local variation in basis weight is difficult to observe visually, even microscopically, at basis weights of 5-30 lbs/ream (*Klowak* notes this basis weight range at Col. 3, lines 24-25.), and I see no evidence in the *Klowak* '054 reference that local variation in basis weight was, in fact, achieved. I do not believe the photographs of *Klowak* show any redistribution or rearrangement of fiber in the web. In general, techniques involving light penetration cannot be used to distinguish more dense regions which may be more opaque from less dense regions of the same local basis weight. Also, glassine, relatively transparent regions, cannot be differentiated from other regions of the same (or lower) local basis weight by light penetration. In order to measure local basis weight variation in paper, X-ray analysis can be used for paperboard. For tissue and towel, we have successfully employed a beta-particle absorption technique; discussed in more detail in paragraph 23 of this *Declaration*.
>
> 6. In addition, it is clear that *Klowak* '054 does not contemplate creping under pressure (which conventionally might be considered to densify the sheet

and make it less absorbent); but rather *Klowak* '054 notes at numerous points that fabric creping must be non-compressive. *See Klowak* '054, Col. 5, lines 26-39:

> The gap in the ***non-compression nip*** **36** is so set that the surface of material **40** barely contacts the exposed surface of web **24**. The surface speed of transfer roll **34**, and, therefore, the speed of web **24** at nip **36** must be greater than the predetermined speed of material **40**. Preferably speed **V1** of roll **34** is about 10% to about 40% greater than the speed **V2** of material **40**.
>
> In an alternative embodiment, transfer roll **34** may be eliminated. In this arrangement, compression means for removing water may be provided by a nip between a press roll and back-up roll for felt **26** and downstream of the nip a non-compression nip may be formed between a felt-supporting roll and material **40**.

as well as Col. 7, lines 29-34:

> The roll carries the web to a non-compression nip defined between the roll and the embossing fabric. At the non-compression nip, the web is directly transferred to the embossing fabric by application of the vacuum through the fluid-pervious fabric.

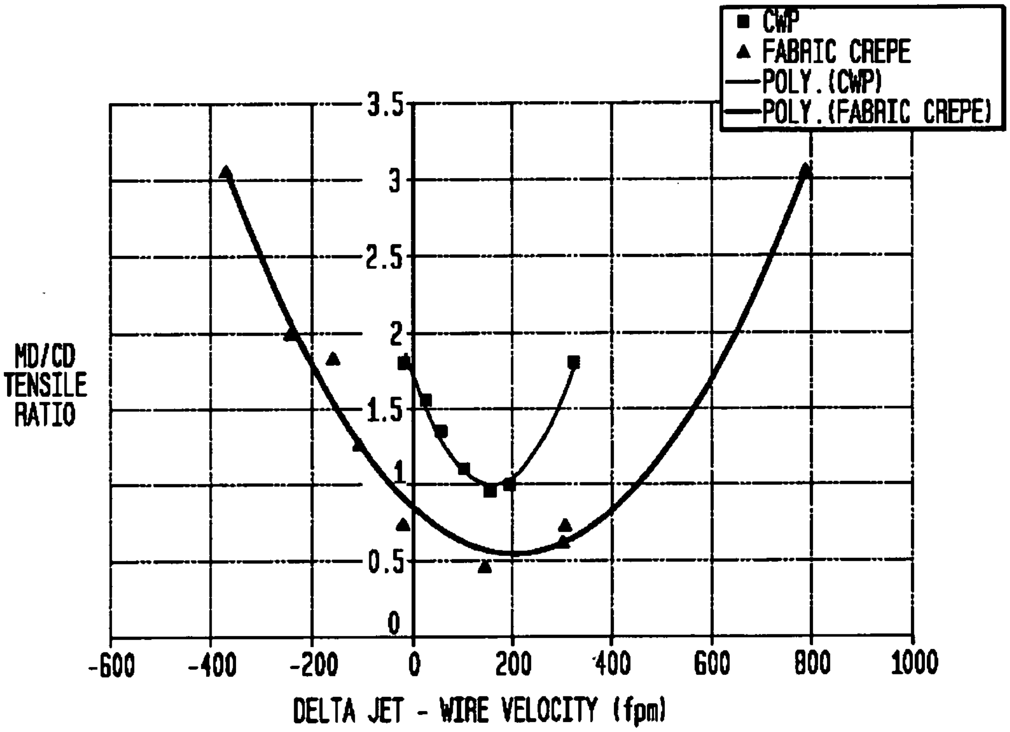
It is further noted that *Klowak* '054 describes absorbent sheet with CD stretch values of less than 4% (most less than 3%). *See* Table I at Col. 9-10 of *Klowak* '054. The elevated CD stretch values for wet-pressed absorbent sheet seen with the '862 Invention are unexpectedly superior over *Klowak* '054. Reviewing the reference as a whole, I do not believe that *Klowak* suggests a process that redistributes fiber of a formed web on a creping fabric.

Note that the properties achieved with the invention are achieved by a different procedure, i.e. creping under pressure and the properties are unexpectedly superior over *Klowak*, not only in terms of the ability to selectively increase CD stretch, but also with respect to controlling the tensile properties by virtue of redistributing the fiber. In this regard, consider further paragraph 28 of the *Declaration*:

> 28. With the '862 invention we are able to achieve an improved absorbent sheet by re-distribution and/or re-orienting fiber on a creping fabric or belt to attain the desired properties. One of skill in the art, I for one, would think this would eliminate or at least greatly reduce the influence the web forming conditions such as jet/wire ratio and so forth. It is seen in **Figure 39** of United States Patent Application Serial No. 11/108,375 filed April 18, 2005 (Attorney Docket No. 12389P1, continuation in part to this '862 application) that jet/wire ratios can be used to control tensile ratios, notwithstanding re-distribution of the fiber formation. **Figure 39** is a plot of MD/CD tensile ratio (strength at break)

versus the difference between headbox jet velocity and forming wire speed (fpm). The upper U-shaped curve is typical of conventional wet-press absorbent sheet. The lower, broader, curve is typical of fabric-creped product of the invention. It is readily appreciated from **Figure 39** that MD/CD tensile ratios of below 1.5 or so are achieved in accordance with the invention over a wide range of jet to wire velocity deltas, a range which is more than twice that of the CWP curve shown. Thus control of the headbox jet/ forming wire velocity delta may be used to achieve desired sheet properties.

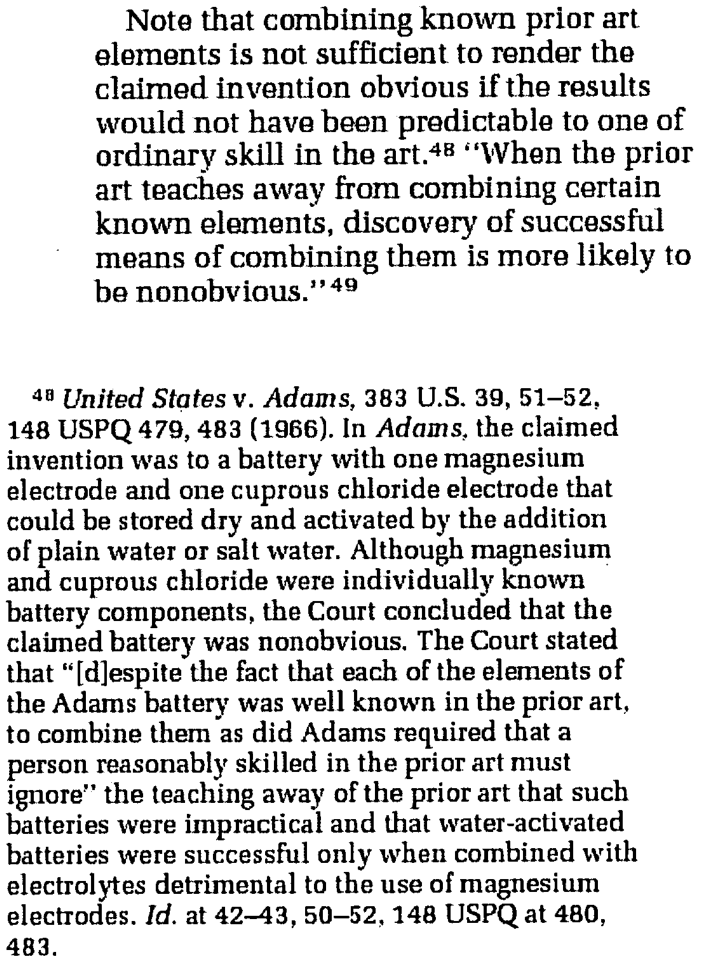
FIG. 39



It is also seen from **Figure 39** that MD/CD ratios below square (i.e. below 1) are difficult; if not impossible to obtain with conventional wet-press processing.

In many products, the cross machine properties are more important than the MD properties, particularly in commercial toweling where CD wet strength is critical. A major source of product failure is "tabbing" or tearing off only a piece of towel rather than the entirety of the intended sheet. In accordance with the invention, CD tensiles may be selectively elevated by control of the headbox to forming wire velocity delta and fabric creping. I find this especially surprising in view of the fact that the fiber in the web has been re-distributed after formation.

The new examination guidelines make clear that unexpected results support patentability and the fact that a reference teaches away is an important consideration. In this case, unexpected results have been observed as to redistributing (or rearranging) fiber in a formed web, a feature which is nonobvious and appears in every pending independent claim. This novel and nonobvious feature has many surprising aspects, including enabling one of skill in the art to control absorbency and tensile properties, especially CD tensile properties, without regard to any specific CD stretch or absorbency value. Such unexpected advances in the art are patentable. Likewise, the fact that *Klowak* teaches away disqualifies the reference for purposes of obviousness of the claimed subject matter in this application. Note page 57,529 of the Oct. 10 *Federal Register* Vol. 72, No. 195:



> Note that combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art.[48] "When the prior art teaches away from combining certain known elements, discovery of successful means of combining them is more likely to be nonobvious."[49]

[48] *United States* v. *Adams*, 383 U.S. 39, 51–52, 148 USPQ 479, 483 (1966). In *Adams*, the claimed invention was to a battery with one magnesium electrode and one cuprous chloride electrode that could be stored dry and activated by the addition of plain water or salt water. Although magnesium and cuprous chloride were individually known battery components, the Court concluded that the claimed battery was nonobvious. The Court stated that "[d]espite the fact that each of the elements of the Adams battery was well known in the prior art, to combine them as did Adams required that a person reasonably skilled in the prior art must ignore" the teaching away of the prior art that such batteries were impractical and that water-activated batteries were successful only when combined with electrolytes detrimental to the use of magnesium electrodes. *Id.* at 42–43, 50–52, 148 USPQ at 480, 483.

In view of the foregoing amendments and remarks, this application is believed in condition for allowance. If for any reason the Examiner would like to discuss this case, the Examiner is invited to call at the number listed below.

Respectfully submitted,

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December 10, 2007